

Claims:

1. A data transmission method which comprises transmitting data over a wireless transmission link in the form of data packets and which method comprises
 - utilising a first protocol layer (44) which adapts data packets according to a second, higher protocol layer (45) to a form suitable for wireless data transmission;
 - transferring, on said first protocol layer, information used to identify the packets, **characterised in that** the method comprises
 - conditionally choosing (32, 33) a size for said information used to identify the packets between at least two alternatives.
2. A data transmission method according to claim 1, which comprises
 - finding out (31) a maximum number of data packets related to one data transmission connection to be transmitted on said first protocol layer over said wireless transmission link at the same time; and
 - performing (32, 33) said choice of size on the basis of said maximum number.
3. A data transmission method according to claim 1 or 2, which comprises
 - performing said choice in such a way that the size of the information is chosen to be as small as possible.
4. A data transmission method according to any of the preceding claims, which comprises
 - using a header structure related to the chosen size on said first protocol layer for transferring the information used to identify the packets.
5. A data transmission method according to any of the preceding claims, wherein said second protocol layer is a network layer protocol of the Open System Interconnection (OSI) model.

6. A data transmission method according to any of the preceding claims, wherein said first protocol layer is a Packet Data Convergence Protocol (PDCP) layer.
7. A data transmission method according to any of the preceding claims, wherein the information used to identify the packets is a sequence number.
8. A data transmission method according to any of the preceding claims, wherein said at least two sizes of the information used to identify the packets are 8 bits and 16 bits.
9. A data transmission method according to claim 7 or 8, which comprises choosing 8 bits for the size of the sequence number when the value of said sequence number varies in the range 0–255, and choosing 16 bits for the size of the sequence number when the value of said sequence number varies in the range 0–65535.
10. A device (27-29, 60, 70) that comprises communication means for packet data based wireless data transmission, which communication means utilise a first protocol layer (44) that adapts data packets according to a second, higher protocol layer to a form suitable for wireless data transmission, said communication means comprising
 - attachment means for attaching information used to identify the packets to the data packets to be transmitted on said first protocol layer, **characterised in that** said device also comprises
 - choosing means for conditionally choosing a size for said information used to identify the packets between at least two alternatives.
11. A device according to claim 9, wherein
 - a maximum number of data packets related to one data transmission connection to be transmitted on said first protocol layer over said wireless trans-

mission link at the same time is found out; and

said choice of size is performed on the basis of said maximum number.

12. A device according to any of the claims 9–11, wherein said device is a mobile station, a laptop computer, a handheld computer, a smart phone, a digital camera, or some network element of a wireless data transmission network or a Radio Network Controller (RNC) element.
13. A device (27-29, 60, 70) that comprises communication means for packet data based wireless data transmission, which communication means utilise a first protocol layer (44) that adapts data packets according to a second, higher protocol layer to a form suitable for wireless data transmission, said communication means comprising
 - reception means for receiving information used to identify the packets on said first protocol layer, **characterised in that** said reception means are configured
 - to receive said information used to identify the packets in at least two alternative forms.
14. A device according to claim 13, wherein said device is a mobile station, a laptop computer, a handheld computer, a smart phone, a digital camera, or some network element of a wireless data transmission network or a Radio Network Controller (RNC) element.
15. A data transmission system (20) that comprises at least one network element (27, 28) and at least one piece of terminal equipment (29), which network element and terminal equipment are connected to each other over a wireless transmission link and comprise
 - means for transmitting information over said wireless transmission link in the form of data packets;
 - means for utilising a first protocol layer, which first protocol layer adapts

data packets according to a second, higher protocol layer to a form suitable for wireless data transmission;

means for transmitting information used to identify the packets on said first protocol layer, **characterised in that** at least either one of said network element and terminal equipment comprises

means for conditionally choosing a size for said information used to identify the packets between at least two alternatives.

16. A computer program to be performed in terminal equipment (27–29, 60, 70) that comprises communication means for packet data based, wireless data transmission, which communication means utilise a first protocol layer (44) that adapts data packets according to a second, higher protocol layer (45) to a form suitable for wireless data transmission and attach information used to identify the packets to the data packets to be transmitted on said first protocol layer, said computer program comprising

a program code for conditionally choosing a size for said information used to identify the packets between at least two alternatives.

17. A computer program according to claim 16 stored on a carrier.

18. An information structure (50) for transferring information used to identify packets over a wireless transmission link on a first protocol layer (44) that adapts data packets according to a second, higher protocol layer (45) to a form suitable for wireless data transmission, said information structure comprising a header field and a data field (55) according to the first protocol layer for said data packet according to the second protocol layer, **characterised in that**

said header field comprises an 8 bit field (54) for said information used to identify the packets.